

REMARKS

Claims 36-69 are now pending in the application. Claims 36 and 62 have been amended. Claim 37 has been cancelled. Support for the foregoing amendments can be found throughout the specification, drawings, and claims as originally filed. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 102

Claims 36-39, 42, 46-47, 50, 53, 57, 58, and 62-64 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Shihoh et al. (U.S. Pat. No. 6,082,851). This rejection is respectfully traversed.

The claimed method and apparatus of the subject application seek to overcome the problem in inkjet systems of gas coming out of solution in the ink and forming bubbles. See, page 1 of the specification. As indicated at page 4 lines 19 to 22, the inventor of the claimed invention recognizes that formation of bubbles at the printhead can cause particular problems.

The inventor has identified that, surprisingly, the problem of bubbles forming at the printheads can be reduced by **deliberately introducing** bubbles into the ink in the container. In accordance with the invention defined in the independent claims, ink can be degassed in the printing apparatus before being supplied to the printheads. By degassing the ink before it is supplied to the printheads, the likelihood of gas coming out of solution and bubbles forming at the printheads can be reduced. Degassing is

achieved is by providing a container for containing the ink to be supplied to the printheads. Ink in the container is degassed before being supplied to the printheads.

Claim 36 calls for “means for supplying a gas to the container to bubble through the ink in the container.” In other words, the claimed device passes gas through the container in the form of bubbles. By bubbling gas through the ink in the container, the amount of dissolved gas in the ink being supplied to the printheads can be reduced, thus reducing the subsequent problem of bubbles forming at the printheads. Applicant submits that Shihoh fails to anticipate the above limitations.

Shihoh at best appears to disclose a liquid ejection printing apparatus. The apparatus shown in Figure 3 referred to by the Examiner includes a first tank 2 for holding liquid to be supplied to a printing head 205, a second tank 4 for holding a liquid to be supplied to the first tank 2, and a third tank 5 for receiving liquid from the first tank 2 and for supplying liquid to the second tank 4. A combination of a pump and valves is used to move the liquid between the tanks. Applicant submits that there is no disclosure and no suggestion in Shihoh of supplying gas to the liquid in any of the tanks so that the gas bubbles through the liquid to degas the liquid. Applicant thus submits that Shihoh cannot anticipate “means for supplying a gas to the container to bubble through the ink in the container.”

The claimed invention seeks to overcome the problem in inkjet systems of gas coming out of solution in the ink and forming bubbles; the claimed invention reduces the amount of dissolved gas in the ink by bubbling gas through the ink.

The method of Shihoh does not reduce the amount of dissolved gas in the ink and therefore Shihoh provides no solution to the problem of bubbles of gas being

formed in the ink. Indeed, passages of Shihoh relate to problems caused because the formation of gas bubbles has **not** been prevented. Passages of Shihoh describe a method for removing bubbles which have already formed in the apparatus.

An example of such a method in Shihoh is described at column 19 lines 5 to 42 and column 21 line 66 to column 22 line 9, where gas within a supply passage is caused to forcedly flow into a holding tank by means of pressurizing a sub-tank. In the "Fourth Embodiment" described at column 19 lines 5 to 42, a positive pressure is applied to a tank by means of a pump tube 342 (see Figure 11). There is no supplying of gas to a container **to bubble through ink in the container** as required by claim 36 as amended. In Shihoh the gas is simply supplied to the space above the liquid in the tank to pressurise the tank. This does not effect degassing of the ink, as is achieved using the apparatus of claim 36 of the present application.

In view of the foregoing, Applicant submits that claim 36 and its dependent claims 38-61 define over the art cited by the Examiner. Claim 62 and its dependent claims 63-69 define over the art cited by the Examiner for one or more of the reasons set forth regarding claim 36.

REJECTION UNDER 35 U.S.C. § 103

Claims 40-41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shihoh et al. (U.S. Pat. No. 6,082,851) in view of Thielman et al. (U.S. Pat. No. 6,547,377). This rejection is respectfully traversed.

Applicant submits that the arguments presented above regarding claim 36 apply here equally. Applicant further submits that Thielman fails to cure the deficiencies of

Shihoh. Applicant submits that Thielman appears silent about the limitation of means for supplying a gas to the container to bubble through the ink in the container.

In view of the foregoing, Applicant submits that claims 40-41 define over the art cited by the Examiner.

Claims 43-45 and 65-67 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shihoh et al. (U.S. Pat. No. 6,082,851) in view of Kashimura et al. (U.S. Pat. No. 6,007,193). This rejection is respectfully traversed.

Applicant submits that the arguments presented above regarding claim 36 apply here equally. Applicant further submits that Kashimura fails to cure the deficiencies of Shihoh. Applicant submits that Kashimura appears silent about the limitation of means for supplying a gas to the container to bubble through the ink in the container.

In view of the foregoing, Applicant submits that claims 43-45 and 65-67 define over the art cited by the Examiner.

Claim 48 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Shihoh et al. (U.S. Pat. No. 6,082,851). This rejection is respectfully traversed.

Applicant submits that the arguments presented above regarding claim 36 apply here equally.

In view of the foregoing, Applicant submits that claim 48 define over the art cited by the Examiner.

Claim 49 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Shihoh et al. (U.S. Pat. No. 6,082,851). This rejection is respectfully traversed.

Applicant submits that the arguments presented above regarding claim 36 apply here equally.

In view of the foregoing, Applicant submits that claim 49 define over the art cited by the Examiner.

Claims 51-59 and 69 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shihoh et al. (U.S. Pat. No. 6,082,851) in view of Lye et al. (U.S. Pat. No. 6,726,754). This rejection is respectfully traversed.

Applicant submits that the arguments presented above regarding claim 36 apply here equally. Applicant further submits that Lye fails to cure the deficiencies of Shihoh. Applicant submits that Lye appears silent about the limitation of means for supplying a gas to the container to bubble through the ink in the container.

In view of the foregoing, Applicant submits that claims 51-59 and 69 define over the art cited by the Examiner.

Claim 54 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Shihoh et al. (U.S. Pat. No. 6,082,851) in view of Dowell (U.S. Pat. No. 6,773,097). This rejection is respectfully traversed.

Applicant submits that the arguments presented above regarding claim 36 apply here equally. Applicant further submits that Dowell fails to cure the deficiencies of

Shihoh. Applicant submits that Dowell appears silent about the limitation of means for supplying a gas to the container to bubble through the ink in the container.

In view of the foregoing, Applicant submits that claim 54 define over the art cited by the Examiner.

Claims 55-56 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shihoh et al. (U.S. Pat. No. 6,082,851) in view of Pawlowski, Jr. et al. (U.S. Pat. No. 5,852,459). This rejection is respectfully traversed.

Applicant submits that the arguments presented above regarding claim 36 apply here equally. Applicant further submits that Pawlowski fails to cure the deficiencies of Shihoh. Applicant submits that Pawlowski appears silent about the limitation of means for supplying a gas to the container to bubble through the ink in the container.

In view of the foregoing, Applicant submits that claims 55-56 define over the art cited by the Examiner.

Claims 59-61 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shihoh et al. (U.S. Pat. No. 6,082,851) in view of Thielman et al. (U.S. Pat. No. 6,467,861). This rejection is respectfully traversed.

Applicant submits that the arguments presented above regarding claim 36 apply here equally. Applicant further submits that Thielman fails to cure the deficiencies of Shihoh. Applicant submits that Thielman appears silent about the limitation of means for supplying a gas to the container to bubble through the ink in the container.

In view of the foregoing, Applicant submits that claims 59-61 define over the art cited by the Examiner.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: _____

July 11, 2008

By: _____

G. Gregory Schivley
G. Gregory Schivley
Reg. No. 27,382

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

GGG/PFD/evm